# 1:4 DVI Dual Link Splitter

## EXT-DVI-144DL
## User Manual

www.gefen.com

# ASKING FOR ASSISTANCE

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**Notice**

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# INTRODUCTION

Congratulations on your purchase of the 1:4 DVI Dual Link Splitter. Your complete satisfaction is very important to us.

## Gefen

Gefen delivers innovative and progressive computer and electronics add-on solutions that harness integration, extension, distribution, and conversion technologies. Gefen's reliable plug-and-play products supplement cross-platform computer systems, professional audio/video environments, and HDTV systems of all sizes with hard-working solutions that are easy to install and simple to operate.

## The Gefen 1:4 DVI Dual Link Splitter

The 1:4 DVI Dual Link Splitter distributes a single dual link DVI source on up to four DVI dual link outputs at the same time, without losing quality or resolution. It works with any dual link DVI supporting resolutions up to 2560 x 1600. The Splitter supports EDID management, output masking, and standby mode using RS-232. In standby mode, the Splitter uses less than 1 Watt of power, even when all DVI devices are still active.

## How It Works

Connect the DVI dual link source to the DVI IN port on the 1:4 DVI Dual Link Splitter, using the included 6 ft. DVI dual link cable. Connect up to four dual link DVI devices to the four DVI outputs on the Splitter. Connect the provided locking power supply to the Splitter and the AC power cord to an available electrical outlet.

## READ THESE NOTES BEFORE INSTALLING OR OPERATING THE 1:4 DVI DUAL LINK SPLITTER

- HDCP content is not supported.

# FEATURES

## Features

- Distributes one dual link source to four DVI dual link outputs
- Supports up to 1080p, 2K, and 2560 x 1600 resolutions
- EDID Management for rapid integration of source and displays
- Output masking
- RS-232 for firmware, masking, and EDID management
- Standby mode
- Rack-mountable

## Package Includes

(1) 1:4 DVI Dual Link Splitter
(1) 6ft. DB9 Cable (M-F)
(1) 6ft. Dual Link DVI cable (M - M)
(1) 5V / 4A DC Locking Power Supply (EXT-PS54AULP)
(1) Set of Rack Ears
(1) Manual

Front Panel

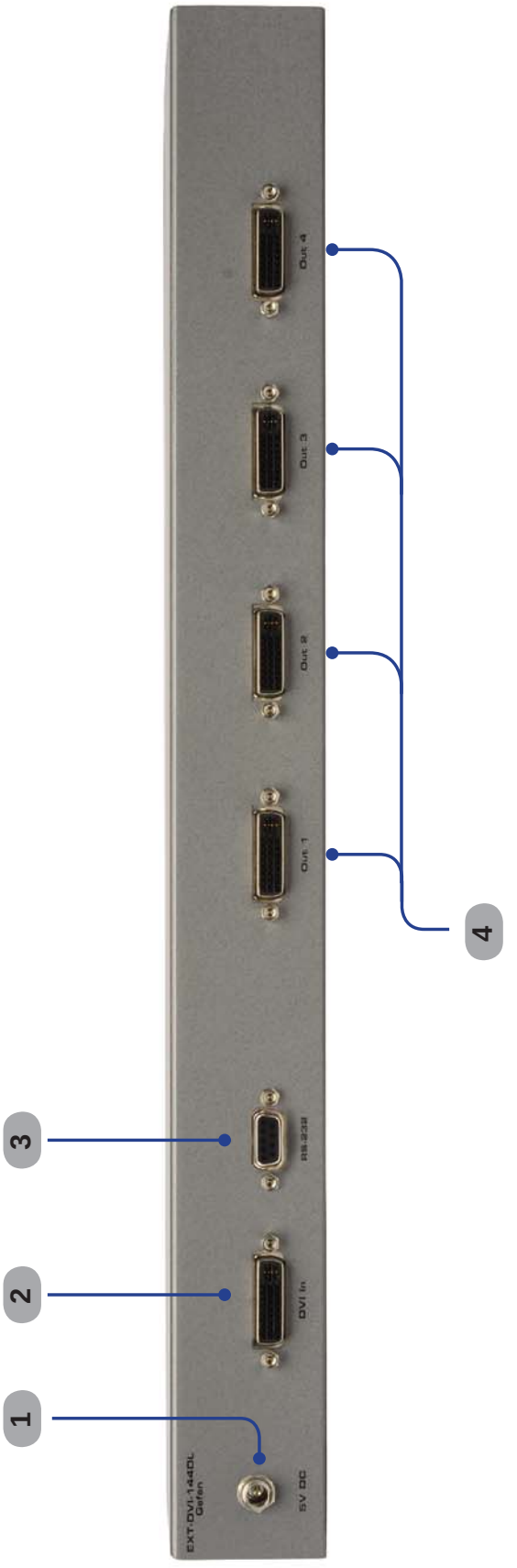
# FRONT PANEL DESCRIPTIONS

***1 Power***

This LED indicator will glow bright red when the unit is powered.

# BACK PANEL LAYOUT

Back Panel



# BACK PANEL DESCRIPTIONS

***1 5V DC***

Connect the included 5V DC locking power supply to this receptacle.

***2 DVI In***

Connect a dual link computer source to the DVI In connector.

***3 RS-232 Serial Port***

This port is used for serial communication using an RS-232 control device. For details, refer to page 9

***4 Out (1 - 4)***

Connect up to four (4) dual link DVI displays to each of the DVI Out connectors.

### How to Connect the 1:4 DVI Dual Link Splitter

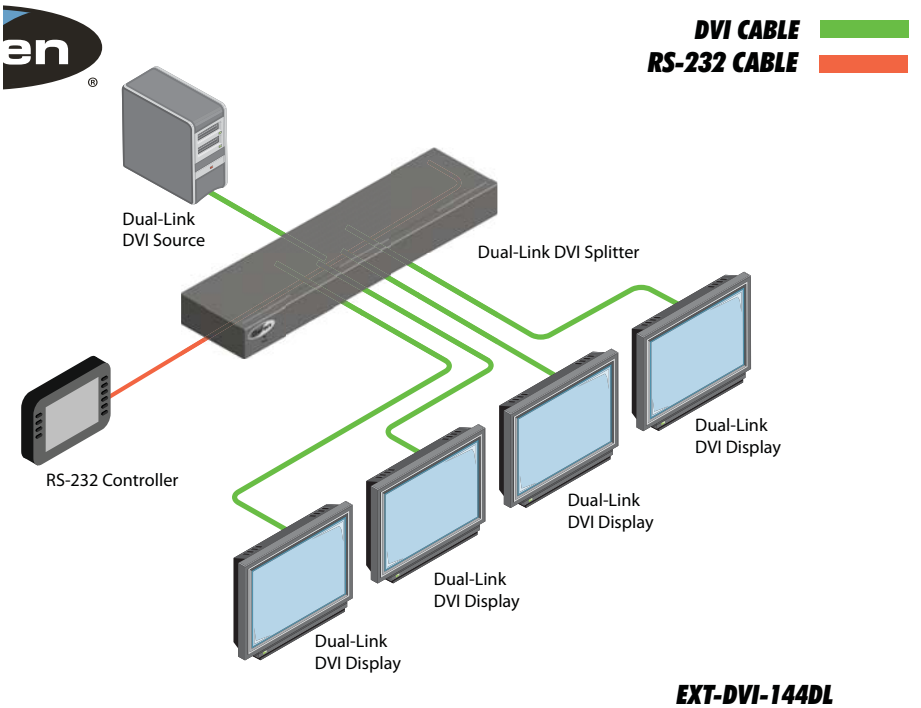
1 Connect the included dual link DVI cable between the DVI source and the DVI In connector on the Splitter.

2 Connect up to four (4) dual link DVI displays to each of the DVI Out connectors on the Splitter.

3 OPTIONAL: To use the RS-232 communication feature, connect an RS-232 cable between the Splitter and the RS-232 host controller.

4 Connect the included 5V locking power supply to the power receptacle on the 1:4 DVI Dual Link Splitter then connect the AC power cord to an available electrical outlet.

### Wiring Diagram for the 1:4 DVI Dual Link Splitter




**ATTENTION:** This product should always be connected to a grounded electrical socket.

Only pins 2 (Receive), 3 (Transmit), and 5 (Ground) are used for communication.

Only Pins 2 (RX), 3 (TX), and 5 (Ground) are used on the RS-232 serial interface

### Default Serial Port Settings

Bits per second ..... 19200

Data bits ..... 8

Parity ..... None

Stop bits .....1

Flow Control ..... None

**IMPORTANT:** When sending RS-232 commands, a *carriage return* and a *line feed* character must be included at the end of each line.

**NOTE:** Only pins 2 (Receive), 3 (Transmit), and 5 (Ground) are used for communication. A null-modem adapter should *not* be used with this product.

**Command Syntax**

Each command uses the following syntax:

#Command_Name [Space] Parameter 1 [Space] Parameter n [CR]

Sample:

#FunctionName_param1_param2_param3_param4...\r

Syntax is NOT case sensitive.

## EDID Management

| Command | Description |
|---|---|
| *#EDIDDETOLO* | Stores the default EDID into all inputs |
| *#EDIDDSTOLO* | Read downstream EDID and stores into all inputs |
| *#LOEDIDTOLO* | Loads EDID from serial port and store in any input |
| *#PRDSEDID* | Reads downstream EDID and sends it to serial port |
| *#PRLOEDID* | Reads local input EDID and sends it to serial port |

**#EDIDDETOLO Command**
The #EDIDDETOLO command stores the default EDID into the inputs.

*Syntax:*

`#ediddetolo`

*Parameters:*

*None*

**#EDIDDSTOLO Command**

The #EDIDDSTOLO command reads the downstream EDID and stores into all local inputs.

*Syntax:*

`#ediddstolo`

*Parameters:*

*None*

**#LOEDIDTOLO Function**

The #LOEDIDTOLO function loads the specified EDID file to a specified local input.

*Syntax:*

`#LOEDIDTOLO param1`

*Parameters:*

*param1* EDID size [1 - 2]

| Value | Meaning |
|---|---|
| 1 | 128 byte EDID |
| 2 | 256 byte EDID |

*Instructions:*

1. Launch Windows® HyperTerminal (or any terminal emulation program).
2. Click **Transfer > Send Text File...**
3. Browse and select the correct EDID file.
4. Click the **Open** button.

*Notes:*

There is a 15 second timeout period if the local EDID file is not uploaded to the Splitter.

**#PRDSEDID Function**

The #PRDSEDID command reads the downstream EDID and spools it to the serial port.

*Syntax:*

`#PRDSEDID param1`

*Parameters:*

| | | |
|---|---|---|
| *param1* | Monitor | [1 - 4] |

**#PRLOEDID Function**

The #PRLOEDID command reads the local EDID and spools it to the serial port.

*Syntax:*

`#PRLOEDID`

*Parameters:*

*None*

## Masking Commands

| Command | Description |
|---|---|
| *#MASKOUT* | Masks the specified output |
| *#UNMASKOUT* | Unmasks the specified output |

**#MASKOUT Command**
The #MASKOUT command masks specific outputs preventing video from being displayed.

*Syntax:*

```
#maskout param1
```

*Parameters:*

| | | |
|---|---|---|
| *param1* | Output | [1 - 4] |

*Notes:*

Set *param1* to 0 to mask all outputs.

**#UNMASKOUT Command**
The #UNMASKOUT command unmasks specific outputs.

*Syntax:*

```
#unmaskout param1
```

*Parameters:*

| | | |
|---|---|---|
| *param1* | Output | [1 - 4] |

*Notes:*

Set *param1* to 0 to unmask all outputs.

## System Commands

| Command | Description |
|---|---|
| *#ACTIVEBOLO* | Activates the boot loader |
| *#FOOFF* | Disables the +5V of the DVI input channel |
| *#FOON* | Enables the +5V of the DVI input channel |
| *#STANDBY* | Enables *Standby Mode* |
| *#WAKEUP* | Disables *Standby Mode* |

**#ACTIVEBOLO Command**
The #ACTIVEBOLO command activates the boot loader. See page 16 for more information.

*Syntax:*

`#activebolo`

*Parameters:*

*None*

*Notes:*

This command must be executed twice.

**#FOOFF Command**
The #FOOFF command disables the +5V of the DVI input channel.

*Syntax:*

`#fooff`

*Parameters:*

*None*

**#FOON Command**
The #FOON command enables the +5V of the DVI input channel.

*Syntax:*

`#foon`

*Parameters:*

*None*

**#STANDBY Command**
The #STANDBY command enables *Standby Mode*. In *Standby Mode*, the Splitter will only consume a maximum of 0.5 Watts.

*Syntax:*

`#standby`

*Parameters:*

*None*

**#WAKEUP Command**
The #WAKEUP command disables *Standby Mode*.

*Syntax:*

`#foon`

*Parameters:*

*None*

### Firmware Update Procedure

Any terminal emulation program can be used to perform the upgrade process. The instructions below is outlined for Windows® HyperTerminal.

1. Connect an RS-232 cable between the Splitter and the computer running the terminal program. Verify the correct serial port settings (see page 9).

2. Type the #activebolo command then press the [ENTER] key.

Repeat Step 2.

The following will be displayed on the screen:

```
================== Main Menu ========================

Download new program -------- 1
Cancel ---------------------- 2
=====================================================
```

4. Press [1] on the computer keyboard to begin downloading program to the htemporary memory.

5. The following message will be displayed:

```
Waiting for the file to be sent ... (press 'a' to abort)
```

6. In Hyperterminal, click **Transfer > Send File...**

7. Click **Browse...** and select the .bin file to be uploaded (e.g. 1x4splitter.bin).

8. Select the **Ymodem** protocol.

9. Click **Send** on the Send File dialog box.

10. After a few moments, a message will appear in Hyperterminal:

```
Programming Completed Successfully!
```

### Installing the Rack Ears

Rack mount ears are provided for installation of this unit into a 1U rack mount space.

1. Locate the side screws on the unit.
2. Remove the front 2 screws that are located closest to the front of the unit.
3. Using the removed screws, screw the rack mounting bracket into the unit.
4. Repeat the procedure on the opposite side of the unit.

# SPECIFICATIONS

Maximum Pixel Clock ..... 2 x 165 MHz

Input DDC Signal ..... 5 Volts p-p (TTL)

Input Video Signal ..... 1.2 Volts p-p

Video Input Connector..... (1) DVI-I, 29-pin, female (digital only)

Video Output Connectors..... (4) DVI-I, 29-pin, female (digital only)

RS-232 Connector.....(1) DB-9, female

Power Supply ..... 5V DC, locking

Power Consumption .....20 Watts (max.), 0.5 Watts (standby)

Dimensions ..... 17.1” W x 4.2” H x 1.75” D

Shipping Weight ..... 5 lbs.

## WARRANTY

Gefen warrants the equipment it manufactures to be free from defects in material and workmanship.

If equipment fails because of such defects and Gefen is notified within two (2) years from the date of shipment, Gefen will, at its option, repair or replace the equipment, provided that the equipment has not been subjected to mechanical, electrical, or other abuse or modifications. Equipment that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for ninety (90) days from the day of reshipment to the Buyer.

This warranty is in lieu of all other warranties expressed or implied, including without limitation, any implied warranty or merchantability or fitness for any particular purpose, all of which are expressly disclaimed.

1. Proof of sale may be required in order to claim warranty.

2. Customers outside the US are responsible for shipping charges to and from Gefen.

3. Copper cables are limited to a 30 day warranty and cables must be in their original condition.

The information in this manual has been carefully checked and is believed to be accurate. However, Gefen assumes no responsibility for any inaccuracies that may be contained in this manual. In no event will Gefen be liable for direct, indirect, special, incidental, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. The technical information contained herein regarding the features and specifications is subject to change without notice.

For the latest warranty coverage information, refer to the Warranty and Return Policy under the Support section of the Gefen Web site at www.gefen.com.

## PRODUCT REGISTRATION

**Please register your product online by visiting the Register Product page under the Support section of the Gefen Web site.**

Rev A2

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This product uses UL listed power supplies.